FIG 1

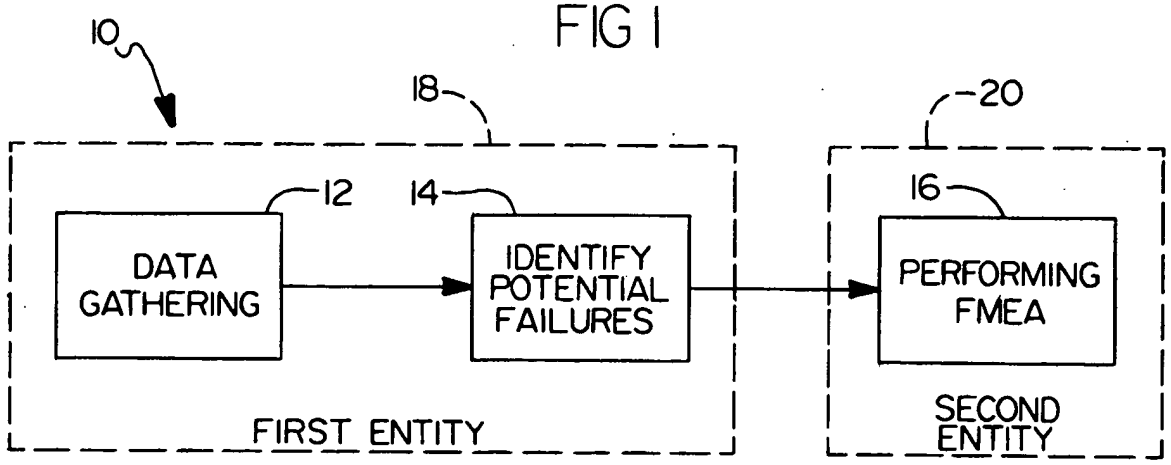
10
18
20
12
14
16
DATA GATHERING
IDENTIFY POTENTIAL FAILURES
PERFORMING FMEA
FIRST ENTITY
SECOND ENTITY

FIG 2

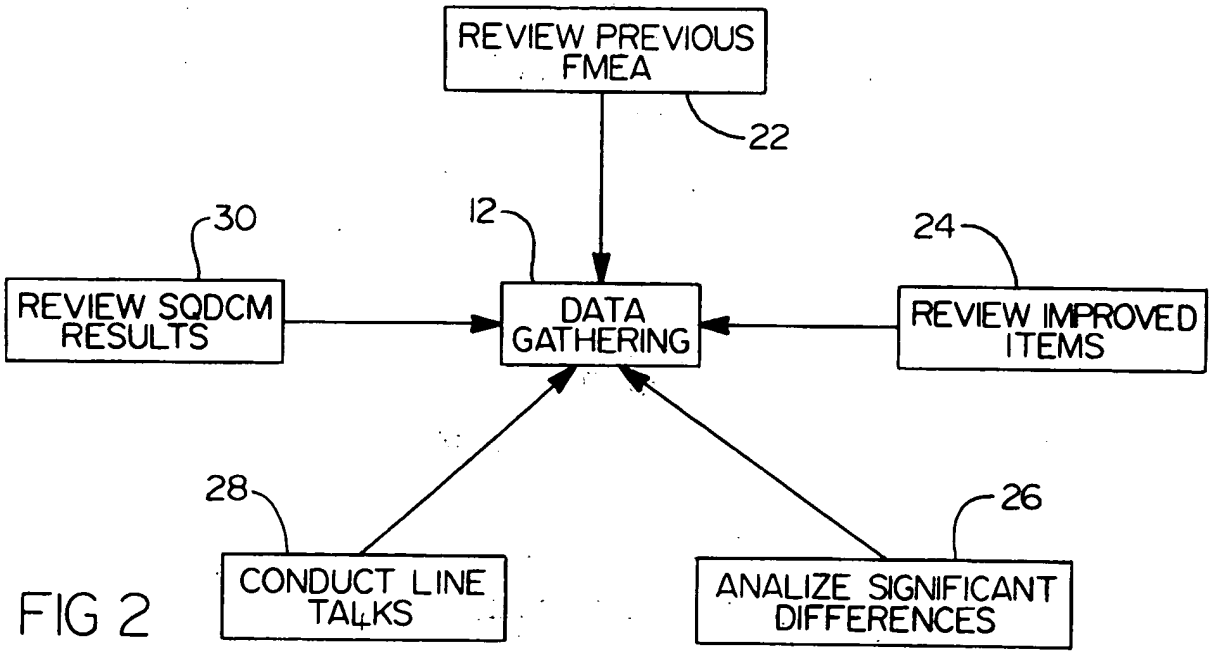
REVIEW PREVIOUS FMEA
22
30
12
24
REVIEW SQDCM RESULTS
DATA GATHERING
REVIEW IMPROVED ITEMS
28
26
CONDUCT LINE TALKS
ANALIZE SIGNIFICANT DIFFERENCES

FIG 3A

SEVERITY RANKING:

LEVEL	PRODUCT/VEHICLE DRIVER SAFETY/QUALITY/COST	DOWNTIME (CENTER) MACHINING	ASSEMBLY	RANKING
VERY HIGH	CONSUMER VERY DISSATISFIED POWERTRAIN INOPERABLE LOSS OF PRIMARY FUNCTION 100% OF PRODUCT MAY NEED TO BE SCRAPPED	>3-5 DAYS	>1 DAY-3 DAYS	8
HIGH	CONSUMER DISSATISFIED POWERTRAIN OPERABLE BUT AT A REDUCED LEVEL OF PERFORMANCE, PRODUCT MAY NEED TO BE SORTED AND A PORTION SCRAPPED	>1-3 DAYS	>8 HRS-1 DAY	7
MODERATE	CONSUMER EXPERIENCES DISCOMFORT POWERTRAIN OPERABLE BUT SOME DISCOMFORT FROM SEVERE LACK OF SMOOTH OPERATION A PORTION OF THE PRODUCT MAY NEED TO BE SCRAPPED (NO SORTING)	>8 HRS-1 DAY	>4-8 HRS	6

FIG 3B

SEVERITY RANKING

LEVEL	PRODUCT/VEHICLE DRIVER SAFETY/QUALITY/COST	DOWNTIME (CENTER) MACHINING	DOWNTIME (CENTER) ASSEMBLY	RANKING
LOW	CONSUMER EXPERIENCES SOME DISSATISFACTION POWERTRAIN OPERABLE BUT LACK OF SMOOTH OPERATION	>4-8 HRS	>1-4 HRS	5
VERY LOW	DEFECT NOTICED BY MOST CONSUMER WHINE (NOISE) & RATTLE DOES NOT CONFORM A PORTION MAY HAVE TO BE SORTED AND REWORKED	>1-4 HRS	>30 MIN-1 HOUR	4
MINOR	DEFECT NOTICED BY AVERAGE CONSUMER WHINE (NOISE) & RATTLE DOES NOT CONFORM A PORTION MAY HAVE TO BE SORTED AND REWORKED ON-LINE BUT OUT OF STATION	>30 MIN-1 HOUR	>10-30 MIN	3
VERY MINOR	DEFECT NOTICED BY DISCRIMINATING CONSUMER WHINE (NOISE) & RATTLE DOES NOT CONFORM A PORTION MAY HAVE TO BE REWORKED ON-LINE AND IN STATION	10-30 MIN	2-10 MIN	2
NONE	NO EFFECT	NO EFFECT	NO EFFECT	1

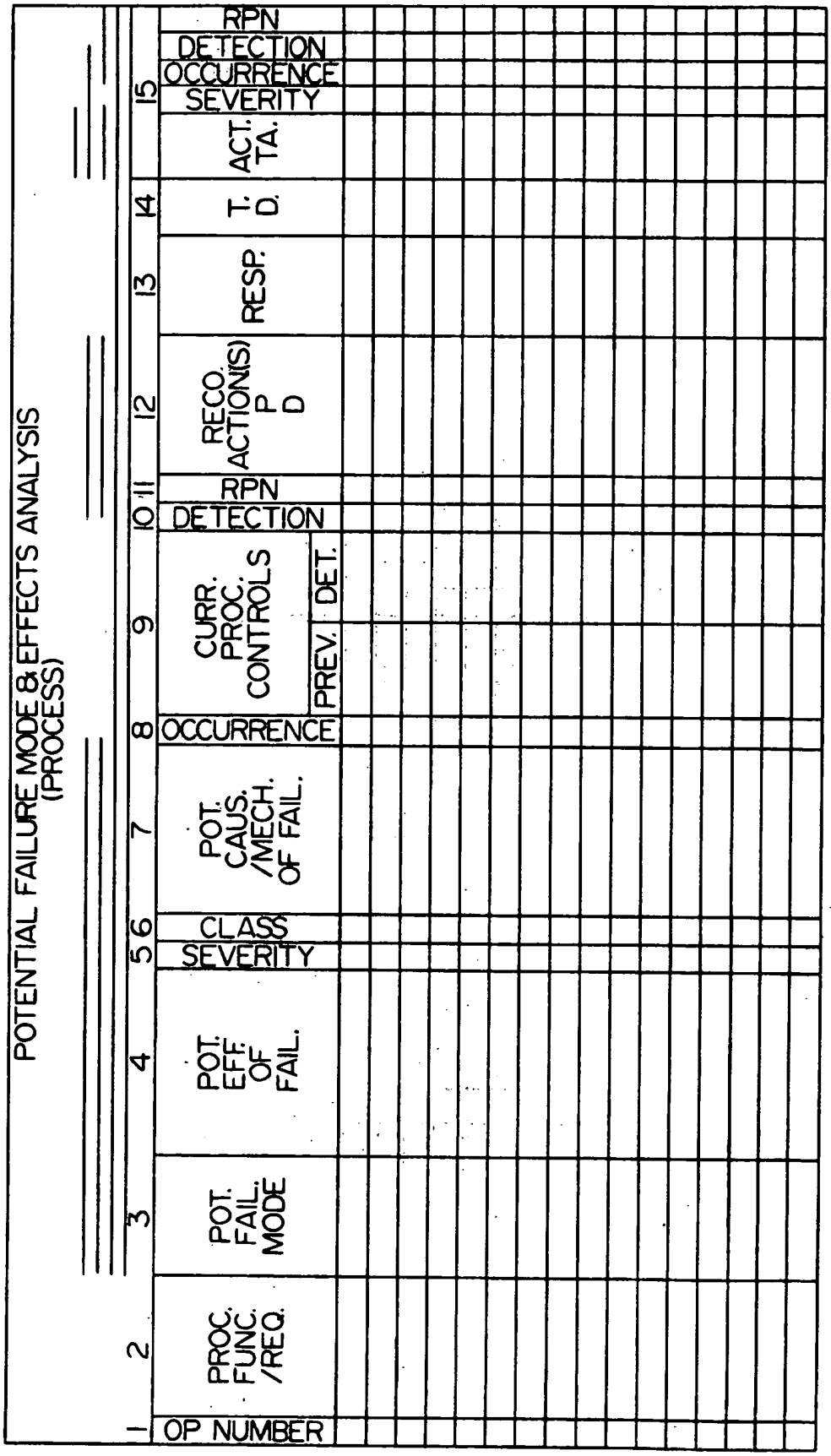
POTENTIAL FAILURE MODE & EFFECTS ANALYSIS
(PROCESS)
1
OP NUMBER
2
PROC. FUNC. /REQ.
3
POT. FAIL. MODE
4
POT. EFF. OF FAIL.
5 6
SEVERITY
CLASS
7
POT. CAUS. /MECH. OF FAIL.
8
OCCURRENCE
9
CURR. PROC. CONTROLS
PREV.
DET.
10 11
DETECTION
RPN
12
RECO. ACTION(S)
P
D
13
RESP.
14
T. D.
15
ACT. TA.
SEVERITY
OCCURRENCE
DETECTION
RPN

FIG 4

FIG 5

OCCURRENCE RANKING

LEVEL	PROBABILITY OF FAILURE	QUANTITY	PER TIME	RANKING
VERY HIGH	FAILURE ALMOST INEVITABLE	>1 IN 2	#PER SHIFT	10
VERY HIGH		1 IN 3	#PER SHIFT	9
HIGH	OFTEN FAILS	1 IN 8	#PER DAY	8
HIGH		1 IN 20	#PER DAY	7
MODERATE	OCCASIONAL FAILURES	1 IN 80	#PER DAY	6
MODERATE		1 IN 400	#PER WEEK	5
MODERATE		1 IN 2000	#PER WEEK	4
LOW	ISOLATED FAILURES	1 IN 15000	#PER MONTH	3
VERY LOW	VERY ISOLATED FAILURES	1 IN 150000	#PER YEAR	2
NONE	VIRTUALLY NO FAILURES ASSOCIATED WITH THIS	<1 IN 1500000	#PER 2 YEARS	1

FIG 6A

DETECTION RANKING:
PROBLEM CAUSES A RANDOM DISTRIBUTION OF BAD PARTS

CONTROL TYPE	WITHIN OP/ST	SUBSEQUENT OPERATION	IN ZONE	IN PLANT	ASSEMBLY PLANT
NONE/AUDIT	10	10	10	10	10
1:250 INSPECTION	9	10	10	10	10
1:250 GAUGING	8	9	10	10	10
1:50 INSPECTION	8	9	10	10	10
1:50 GAUGING	7	8	9	10	10
1:10 INSPECTION	7	8	9	10	10
1:10 GAUGING	6	7	8	10	10
100% INSPECTION	4	5	6	7	10
100% GAUGING	3	4	5	6	10
MACHINE CONTROLS/MP	2	3	4	5	9
CANNOT PASS/EP	1	2	3	4	8

FIG 6B

SETUP PROBLEM CAUSES BAD PART

CONTROL TYPE	WITHIN OP/ST	SUBSEQUENT OPERATION	IN ZONE	IN PLANT	ASSEMBLY PLANT
NONE/AUDIT	10	10	10	10	10
1:250 INSPECTION	8	9	10	10	10
1:250 GAUGING	7	8	9	10	10
1:50 INSPECTION	7	8	9	10	10
1:50 GAUGING	6	7	8	10	10
1:10 INSPECTION	6	7	8	10	10
1:10 GAUGING	5	6	7	10	10
100 % INSPECTION	4	5	6	7	10
1ST PIECE INSPECTION	4	5	6	7	10
100% GAUGING	3	4	5	6	10
1ST PIECE GAUGING	3	4	5	6	10
MACHINE CONTROLS/MP	2	3	4	5	9
CANNOT PASS/EP	1	2	3	4	8

FIG 6C

PROBLEM CAUSES A CONTINUOUS FLOW OF BAD PARTS

CONTROL TYPE	WITHIN OP/ST	SUBSEQUENT OPERATION	IN ZONE	IN PLANT	ASSEMBLY PLANT
NONE/AUDIT	10	10	10	10	10
1:250 INSPECTION	8	9	10	10	10
1:250 GAUGING	7	8	9	10	10
1:50 INSPECTION	7	8	9	10	10
1:50 GAUGING	6	7	8	10	10
1:10 INSPECTION	6	7	8	10	10
1:10 GAUGING	5	6	7	10	10
100% INSPECTION	4	5	6	7	10
100% GAUGING	3	4	5	6	10
MACHINE CONTROLS/MP	2	3	4	5	9
CANNOT PASS/EP	1	2	3	4	8

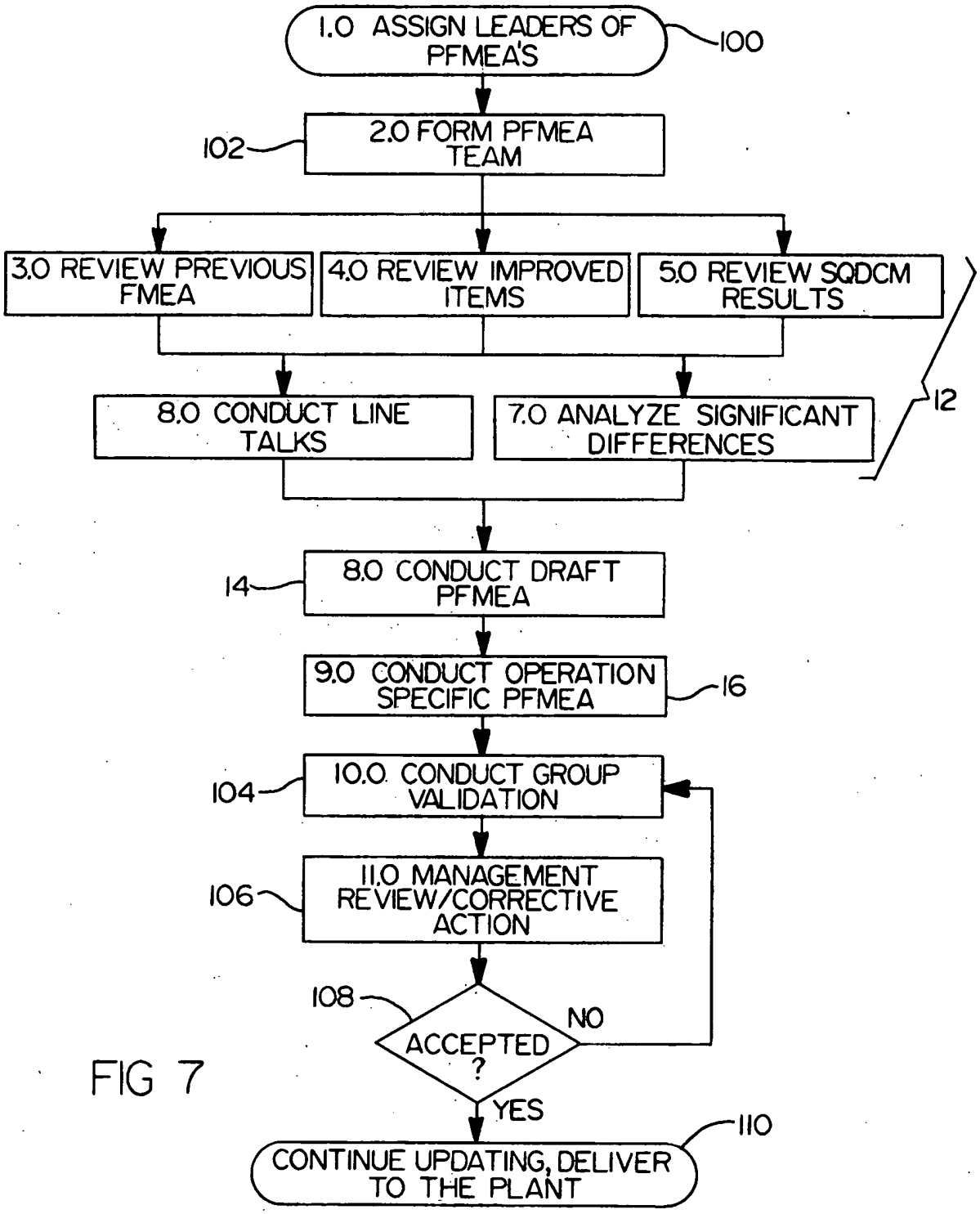
1.0 ASSIGN LEADERS OF PFMEA'S
100
2.0 FORM PFMEA TEAM
102
3.0 REVIEW PREVIOUS FMEA
4.0 REVIEW IMPROVED ITEMS
5.0 REVIEW SQDCM RESULTS
8.0 CONDUCT LINE TALKS
7.0 ANALYZE SIGNIFICANT DIFFERENCES
12
8.0 CONDUCT DRAFT PFMEA
14
9.0 CONDUCT OPERATION SPECIFIC PFMEA
16
10.0 CONDUCT GROUP VALIDATION
104
11.0 MANAGEMENT REVIEW/CORRECTIVE ACTION
106
108
ACCEPTED ?
NO
YES
CONTINUE UPDATING, DELIVER TO THE PLANT
110

FIG 7